

## **Title of the Invention**

### **ADJUSTABLY SIZABLE AND PROTECTIVE BOOT**

## **Technical Field of the Invention**

This invention pertains to a protective boot, which is wearable over a shoe  
5 or a boot by a person, such as a firefighter or an emergency worker, who risks  
being exposed to hazardous materials, and which is designed to be adjustably  
sized in a novel manner.

## **Background of the Invention**

Commonly, a person, such as a firefighter or an emergency worker, who  
10 risks being exposed to hazardous materials, wears a protective suit, which fully  
encapsulates the arms, legs, and torso of the person, and protective boots, which  
are worn over conventional shoes or conventional boots.

For each wearer, the protective boots must be properly sized, so as fit  
15 without being so oversized as to become tripping hazards. Heretofore, agencies  
employing firefighters or emergency workers have needed to stock protective  
boots in different sizes, so as to accommodate wearers having differently sized  
feet.

## **Summary of the Invention**

This invention provides a protective boot, which is wearable over a shoe or  
20 a boot, which is made from a foldable material, and which has an ankle-covering  
portion and a foot-covering portion. The foot-covering portion having a heel end  
and a toe end. Near the toe end, the foot-covering portion is fastenable, whereby  
the foot-covering portion can be adjustably sized.

Preferably, the foot-covering portion is foldable onto itself near the toe end  
25 and is fastenable to itself when and where folded onto itself fastenable, whereby

the foot-covering portion can be adjustably sized. Preferably, moreover, the foot-covering portion is fastenable releasably to itself. Preferably, the protective boot has means for fastening the foot-covering portion to itself when and where folded onto itself. Preferably, moreover, the protective boot has means for fastening the foot-covering portion releasably to itself.

In a preferred embodiment, hook-and-loop fastening means (*e.g.*, Velcro™ fasteners) are used for fastening the foot-covering portion releasably to itself when and where folded onto itself, at any position within a range of possible positions. Hook-and-loop fasteners, if used therefor, enable the foot-covering portion to be releasably fastened to itself when and where folded onto itself, at any position within a range of possible positions. Other fastening means, such as a snap fastener, a set of snap-fasteners, or lacing, may be alternatively used.

The protective boot may have a hook-and-loop strap drawn around the protective boot and fastened to itself and to said fastening means. Preferably, the protective boot has two hook-and-loop straps, each drawn around the protective boot and fastened to itself and to said fastening means. Preferably, moreover, one said strap is drawn around the foot-covering portion, between the toe end and the ankle-covering portion, and the other strap is drawn around the ankle-covering portion.

## **Brief Description of the Drawings**

Figure 1 is a side, perspective view of a protective boot constituting a preferred embodiment of this invention and being worn by a wearer, such as a firefighter or an emergency worker, before a foot-covering portion of the protective boot is being folded up, back, and onto itself, near a toe end of the foot-covering portion.

Figure 2 is a side, perspective view thereof and Figure 3 is a front, perspective view thereof, after the foot-covering portion has been folded up, back, and onto itself and has been fastened releasably to itself, via hook-and-loop fastening means.

5        Figure 4 is an enlarged detail, which is taken from Figure 2. Figures 5, 6, 7, and 8 are analogous details, which illustrate the protective boot with alternative fastening means.

### **Detailed Description of the Illustrated Embodiments**

10        As illustrated in Figures 1 through 4, a protective boot 10 constituting a preferred embodiment of this invention and being worn by a wearer, such as a firefighter or an emergency worker, is made from a foldable material, such as Nomex™ material or Kevlar™ material, which conforms to applicable standards of the National Fire Protection Association (NFPA) or other standards-setting organizations. For some applications, a foldable material such as neoprene may be alternatively used.

15        The protective boot 10 has an ankle-covering portion 12 and a foot-covering portion 14. The foot-covering portion 14 has a heel end 16 and a toe end 18. Near the toe end 18, the foot-covering portion 14 is foldable up, back, and onto itself and is fastenable releasably to itself when and where folded onto itself, whereby  
20        the foot-covering portion 14 can be adjustably sized in its toe-to-heel length. The protective boot 10 is provided with a wear-resistant sole 20, which is made from another, suitable material and which adheres to the foot-covering portion 14 via a suitable adhesive.

25        As preferred means for fastening the foot-covering portion releasably to itself when and where folded onto itself, the protective boot 10 has hook-and-loop

fastening means 30 (e.g., Velcro™ fasteners) which comprise a hook-faced patch 32 adhering to the toe end 18 and two loop-faced strips 34 adhering to the foot-covering portion 14, between the toe end 18 and the ankle-covering portion 12, and which are used to fasten the foot-covering portion 14 releasably to itself when and where folded onto itself, at any position within a range of possible positions. As illustrated in Figure 1, before the foot-covering portion 14 is folded onto itself, the loop-faced strips 34 are spaced from the hook-faced patch 22. A suitable adhesive is used to cause the hook-faced patch 32 to adhere to the toe end 18 and to cause the loop-faced strips 34 to adhere to the foot-covering portion 14, between the toe end 18 and the ankle-covering portion 12.

As illustrated in Figures 1, 2, and 3, two hook-and-loop straps are drawn around the protective boot 10 and are fastened releasably to themselves and to the loop-faced strips 34, one such strap 40 being drawn around the foot-covering portion 14, between the toe end 16 and the ankle-covering portion 12, and the other strap 50 being drawn around the ankle-covering portion 12. Each hook-and-loop strap 40, 50, has a hook-faced portion, which fastens releasably to the loop-faced strips 34, and a loop-faced portion, which fastens releasably to the hook-faced portion. Thus, where the hook-and-loop straps 40, 50, are drawn around the protective boot 10, the hook-and-loop straps 40, 50, compensate for any looseness in the foldable material of the protective boot 10.

In Figure 5, an alternative embodiment is illustrated, in which a set of snap fasteners are used, rather than the hook-and-loop fastening means 30. A fastener part 60 defining a socket is fastened to the toe end 18 and several fastener parts 62 defining plugs, which are adapted to be snap-fitted into the socket defined by the fastener part 60, are fastened to the foot-covering portion 14, between the toe end

18 and the ankle-covering portion 12. The fastener 60 defining the socket is snapped releasably onto a selected one of the fasteners 62 defining plugs.

In Figure 6, an alternative embodiment is illustrated, in which a lace 70 is used, rather than the hook-and-loop fastening means 30. The lace 70 is passed through a metal ring 72, which is fastened to the toe end 16, and through a metal ring 74, which is fastened to the foot-covering portion 14, between the toe end 18 and the ankle-covering portion 12, and is tied with a releasable knot 76.

In Figure 7, an alternative embodiment is illustrated, in which a hook-and-loop strap 80 having a hook-faced portion and a loop-faced portion is used, rather than the hook-and-loop fastening means 30. Near the toe end 18, the foot-covering portion 14 is drawn into a tight bundle 82 and is fastened in the tight bundle 82 via the hook-and-loop strap 80, which is drawn around the tight bundle 82 and which is fastened to itself via its hook-faced and loop-faced portions.

In Figure 8, an alternative embodiment is disclosed, in which the hook-and-loop fastening means 30 is not used. Rather, the toe end 18 of the foot-covering portion 14 is tucked under the hook-and-loop strap 40, whereby the foot-covering portion 14 is fastened releasably to itself when the hook-and-loop strap 40 is drawn tightly and is fastened to itself.